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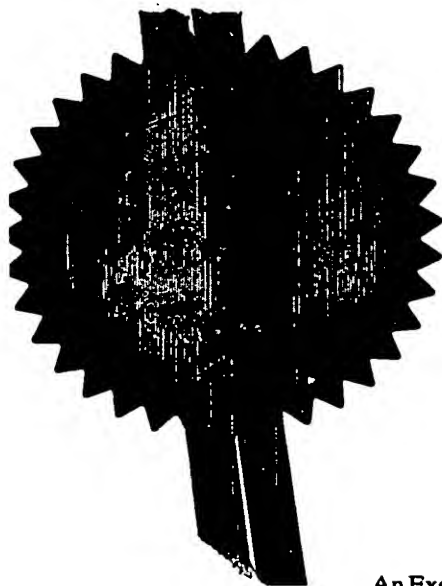
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Stephen Hendley

Dated 8 January 2004

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DJ/RTB/38182

2. Patent application number

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0317149.3

22 JUL 2003

3. Full name, address and postcode of the or of each applicant (underline all surnames)

Simon Pratt
120 Pickford Lane
Bexleyheath
Kent
DA7 4RS

Patents ADP number (if you know it)

If the applicant is a corporate body, give the country/state of its incorporation

867 8997001

4. Title of the invention

RAMP

5. Name of your agent (if you have one)

"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)

Baron & Warren

19 South End
Kensington
LONDON
W8 5BU

Patents ADP number (if you know it)

281001

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Country

Priority application number
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Date of filing
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7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application

Date of filing
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Continuation sheets of this form

Description

11

Claim(s)

Abstract

Drawing(s)

6 figs

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Priority documents

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Statement of inventorship and right to grant of a patent (Patents Form 7/77)

Request for preliminary examination and search (Patents Form 9/77)

Request for substantive examination (Patents Form 10/77)

Any other documents (please specify)

11.

I/We request the grant of a patent on the basis of this application.

Signature

Brown + Warren

Date 22-07-03

Agents for the Applicant

12. Name and daytime telephone number of person to contact in the United Kingdom

Douglas Johnstone - 01732 450660

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RAMP

The present invention relates to a ramp suitable for use by rollerbladers, skateboarders, snowboarders, trick cyclists, mountain boarders and the like.

There are a growing number of parks being set up which provide facilities for skateboarders and the like (hereinafter merely referred to as skateboarders) in which ramps of various configurations are provided for assisting in the execution of jumps and tricks. The ramps are large fixed structures. When skateboarders are not at such parks the ability to perform such tricks is limited by suitable surfaces which can be found in the built environment. Such surfaces can be difficult to locate and are not always situated in convenient locations. It would accordingly be advantageous to provide a ramp which could easily be carried to set up at a convenient location. One attempt to provide such a ramp is described in patent US 5599235. The ramp is constructed from three relatively large sections each of which would not be easy to transport and all three sections could certainly not be carried by a single person. Furthermore the ramp has an upper surface which defines abrupt changes of slope.

An object of the invention is to provide a ramp which is more convenient to transport and provides a better surface for launching a skateboarder from.

Thus according to the invention there is provided a collapsible ramp comprising a deck including a plurality of mutually parallel elongate members hingeably

interconnected by hinges with axes disposed parallel to longitudinal axes of the elongate members and a support structure , the elongate members being configured such that when the deck is deployed it has a generally concave upper surface and can be rolled up when not deployed.

Such a ramp can be designed to be packed into a relatively small volume and thereby more easily carried by a single person than the prior art ramps and the concave upper surface to the deck can be designed to provide a gentle transition curve which will accelerate the skateboarder upwards at a substantially uniform rate.

Preferably at least some and more preferably substantially all of the elongate members have a concave upper surface whereby, when the deck is deployed, its upper surface is substantially continuously curved. Such an arrangement is preferable to the elongate members each having a flat upper surface and the ramp curvature merely being provided by the juxtapositions of the elongate members relative to each other. The continuously curved upper surface will provide a near perfect surface for launching a skateboarder from.

So as to increase the rigidity of the ramp when deployed, adjacent elongate members preferably engage each other in a form locking manner when the deck is deployed.

The elongate member at one end of the deck is preferably tapered in order that a smooth transition onto the ramp can be achieved.

The elongate member at the opposite end of the deck preferably has a rounded upper distal edge to minimise the chance of an injury occurring if a skateboarder falls onto it.

The elongate members preferably comprise moulded plastics members since plastics materials can easily be moulded into any desired shape and will be durable. More preferably the elongate members are hollow open bottomed structures possibly of a tray like construction with a peripheral downwardly extending lip or wall. Such a construction provides a high strength to weight ratio and excellent rigidity.

The support structure is preferably also collapsible and conveniently includes prismatic, such as tubular, compression members which engage node or joint pieces.

Preferably the compression members are hingeably interconnected in such a manner that they can remain interconnected when the support structure is in a folded non-deployed state.

To keep the weight of the support structure down it preferably also includes tension members which hold other parts thereof in a deployed configuration.

In order to facilitate collapsing of the ramp, the deck is preferably located relative to the support structure by first engagement means on an underside of the deck which are selectively engageable with complementary second engagement means on the support structure.

To reduce ramp flexibility when the ramp is deployed the engagement means preferably acts to support the deck adjacent end regions thereof and at at least one intermediate region thereof.

The support structure preferably includes feet with through holes and fastening means adapted to pass through the holes for engagement with a support surface. With such an arrangement, the ramp can be securely anchored to surfaces such as soil and snow. The fastening means may be stakes or may be threaded so that they can be screwed into the support surface. Alternatively or preferably in addition the feet each include friction enhancing means on a lower surface thereof which may comprise texturing such as ribbing or projections or may comprise pads of material such as rubber.

The invention will now be described by way of example only with reference to the accompanying drawings in which:

Fig 1 shows a perspective view of a ramp according to a first embodiment of the invention;

Fig 2 shows the ramp of figure 1 in a collapsed state;

Fig 3 shows a support frame of the ramp in a partially deployed state;

Fig 4 shows the support frame in a fully deployed state;

Fig 5 shows the unrolled deck of a second embodiment of the invention ready to be installed on the fully deployed support frame;

Fig 6 shows an underside view of the deck shown in figure 5 and enlarged side elevations of end portions of the deck;

Figs 7 & 8 show further views of the deck ready for connection to the support structure; and

Fig 9 shows an enlarged end view of part of the deck detailing interengagement of the elongate members from which it is constructed.

A first embodiment of the ramp 2 is shown in figure 1 which includes deck 4 composed of a plurality of elongate members which will be referred to as slats 6 and which are hingeably interconnected by hinge pins 8. The ramp also includes a support structure 10 made up from a plurality of tubes 12 and tension wires 14. At the lower end of the support structure there are four feet 16a, 16b. The ramp is shown in its deployed configuration in figure 1 and in its non-deployed collapsed configuration in figure 2 ready for transportation.

In the embodiment shown in figures 1 and 2 each slat 6 comprises a hollow prismatic section which may be an extruded metal section for example made of aluminium. The deck 4 comprises fourteen substantially identical centre section slats 18, an upper slat 20 with a curved upper

distal edge 22 and a lower slat 24 with a tapered distal edge 26. The hinge pins 8 which pivotably interconnect adjacent slats at or adjacent to their lower surfaces 36 are of stainless steel and may extend the full width of the deck 4 or may be short pins which are positioned at either side of the deck and also possibly at one or more intermediate locations across the width of the deck. Each centre section slat 18 includes a tongue 30 extending along one side and a complementary groove 32 extending along its opposite side. The upper slat 20 has groove 34 similar to the grooves 32 of the centre section slats at its proximal edge. The lower slat 24 has a tongue (not shown) similar to the tongues 30 of the centre section slats at its proximal edge. When the deck 4 is in its deployed configuration each tongue is snugly accommodated within a groove of an adjacent slat. The tongues and grooves are configured to provide a form locking engagement between adjacent slats. For each hinged joint between adjacent slats, the tongue and groove are dimensioned and positioned relative to the associated hinge pin such that the tongue resiliently snaps into engagement with the groove when the deck is deployed and resiliently snaps out of it when the deck is rolled up. While tongues and grooves have been shown, other alternatives such as L-shaped engaging surfaces could be employed.

The lower surfaces 36 of the slats are provided with recesses (not shown in figure 1) for engagement of the deck 4 with the support structure 10. The general form of these recesses will be described below in the context of an alternative preferred deck construction shown in

figures 5 to 9 in which like parts having the same form and function as parts shown in figure 1 have been designated with the same reference numerals with a prime sign and will not be described in detail.

A perspective underside view of the alternative deck 38 is shown in figure 6 which includes an enlarged lower end view 40 and an enlarged upper end view 42 of the deck. The enlarged lower end view 40 shows the tongue 44 on the lower slat 24 not shown in figure 1.

The centre section slats 18' of the alternative deck 38 shown in figure 6 differ from the slats 18 shown in figure 1 in that they are not hollow tubular sections, they are instead moulded from plastics material such as ABS plastic or some other suitable material. They have a generally tray like construction comprising a slightly curved central part 43 and a depending lip 45 extending around its perimeter. Reinforcing webs 51 extend across the slat at spaced locations along its length.

A cylindrical recess 46 is provided in the under side of the upper slat 20' adjacent each end thereof. A similar recess 48 is provided adjacent each end of one of the centre section slats 18' which is adjacent to the lower slat 24' (third slat in from the lower end) and another recess 50 is provided in the middle of a centre section slat around the middle of the deck 38. Similar recesses in equivalent positions will be provided in the underside of the deck 4 shown in figure 1 and are for engagement by parts of the support structure 10 as described below.

Each groove 32', 34' is bounded on its underside by an underside lip 52 which has gaps (not shown) which receive complementary underside shoulders 54 of an adjacent slat. The underside shoulders 54 project downwardly from the lower surface of each slat adjacent its tongue 30'. Aligned holes 56 in the lip 52 and shoulders 54 receive the hinge pin or pins 8.

As shown in figure 9 the slats are configured such that when the deck is in the deployed configuration its upper surface is bowed slightly downwards and accordingly presents a slightly concave surface 58 which is substantially continuously curved. The amount of curvature is shown by comparison with the straight line 60 in figure 9. Furthermore the upper surface 62 of each slat is itself slightly curved and has a radius of curvature matching the overall curvature of the deck as determined by interengagement of the slats with each other. A tapered topside lip 62 extends along each slat in the region where its upper surface confronts an adjacent slat so as to minimise the jolt felt when a wheel passes from one slat to another.

With reference to figure 5 in particular the support structure 10 includes a central pivot joint 66 to which six tubes are pivotably connected. Four of these tubes are ground tubes 68 each of which extends downwardly and outwardly to one of the feet 16a, 16b and the other two of which are upper tubes 70 which extend upwardly and outwardly from the central pivot joint 66 to junctions, which in the example shown comprise junction blocks 72. A

column tube 74 extends upwardly from each upper end foot 16b and has an upper end 76 which extends slightly through the associated junction block 72. Each upper end foot 16b is also connected to the junction block 72 on the other side of the ramp by a diagonally disposed bracing tube 78. Where the bracing tubes 78 cross they are connected to each other by a pivot pin as shown in figure 1 and may be covered by a flexible sleeve 82 as shown in figure 5.

Each lower end foot 16a has a protrusion 84 extending upwardly therefrom which in the present embodiment is a short cylindrical protrusion. A similar protrusion 86 extends upwardly from the central pivot joint 66. Each foot 16a, 16b also includes a substantially vertically disposed through aperture 88 for accommodating a securing device 90 having a lower end 92 which is threaded and an upper end 94 which has a torque bar extending therethrough for winding the threaded lower end 92 into ground on which the support structure is positioned. The threaded lower ends 92 will be suitable for engagement with soil, snow and any other similar surface. Undersides of the feet are provided with friction enhancing pads 98 (shown in figure 8) which may be in the form of rubber pads for restraining the ramp against lateral displacement when it is positioned on ground into which it is not possible or desirable to screw the securing devices 90. In such a situation the securing devices 90 would not be inserted into the through apertures 88.

One of the tension wires 14 extends from each foot to an adjacent foot thereby connecting the four feet to form a quadrilateral. The tension wires are of such a length

that they prevent the feet from spreading beyond the deployed configuration shown in figure 5.

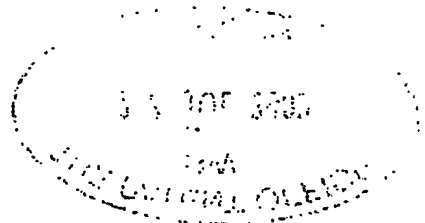
With the deck 38 unrolled and the support structure 10 erected as shown in figure 5 the deck 38 is lowered onto the support structure 10 as shown in figure 7. The protrusions 84 on the lower end feet 16a engage the recesses 48 (see figure 6) in the lower surface of one of the central section slats close to the lower slat 24', the protrusion 86 on the central pivot joint engages the recess 50 in the lower surface of one of the centrally positioned slats and the upper ends 76 of the column tubes 74 engage the recesses 46 in the lower surface of the upper slat 20'. Locking devices may be provided for securing the deck slats to the support structure 10 to prevent the deck from jumping off the support structure.

For transportation purposes the ramp 2 will be in the state shown in figure 2 with the deck 4 rolled compactly, the support structure 10 collapsed with its tubes disposed generally parallel and close to each other, the securing devices 90 removed from the feet 16a, 16b and the tension wires 14 separated from other parts of the support structure 10. The tension wires 14 may alternatively be left connected to the support structure. When the ramp is to be deployed the feet 16a, 16b are first pulled away from each other as shown in figure 3. As this occurs the central pivot joint 66 moves downwardly and the angle between the bracing tubes 78 increases as they pivot relative to each other about the pivot pin 80. One of the tension wires 14 will then be connected between each pair of adjacent feet and the feet then separated further until

the tension wires 14 come under tension. The upper tubes 76 and bracing tubes 78 will then be engaged with the junction blocks 72 possibly by being forced into cylindrical recesses therein. The support structure will then be in the configuration shown in figure 4 and ready for the deck to be attached thereto as shown in figures 5, 7 and 8 and as described above. The securing devices can also be used to secure the feet if appropriate. The ramp is then ready for use by skate boarders and the like.

The ramp described above can easily be designed so as to be portable by a single person and provides an excellent means for launching skateboarders and the like for the purpose of executing airborne manoeuvres.

While a particular embodiment has been described , it will be understood that variations may be made which do not depart from the scope of the invention.



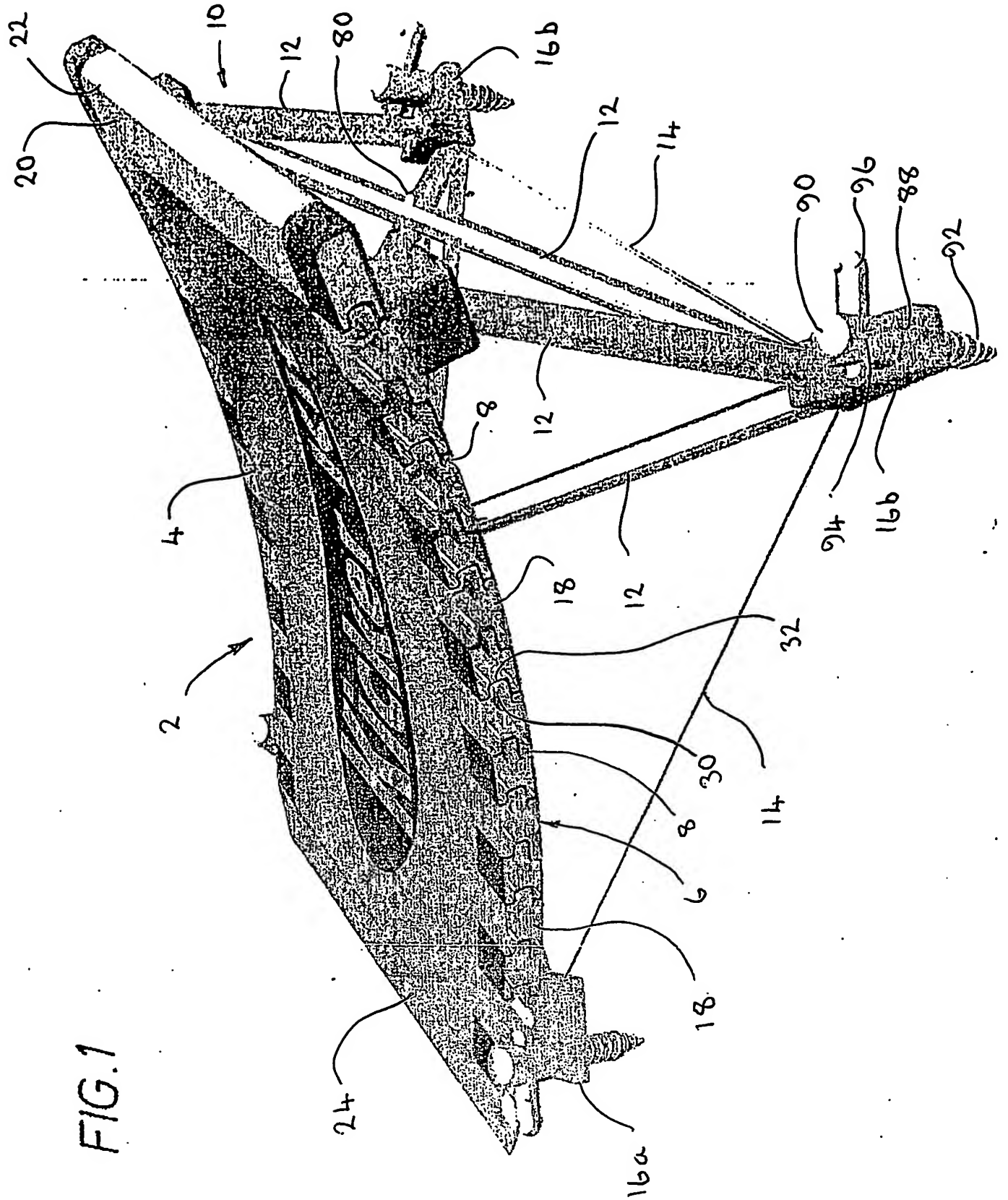


FIG. 2

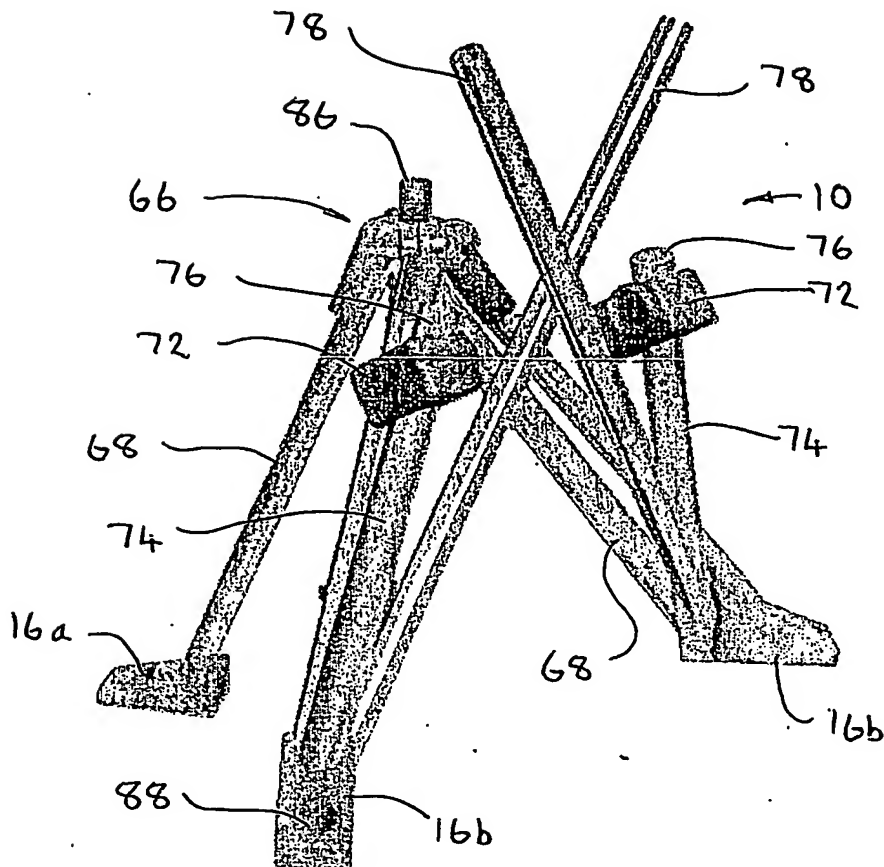
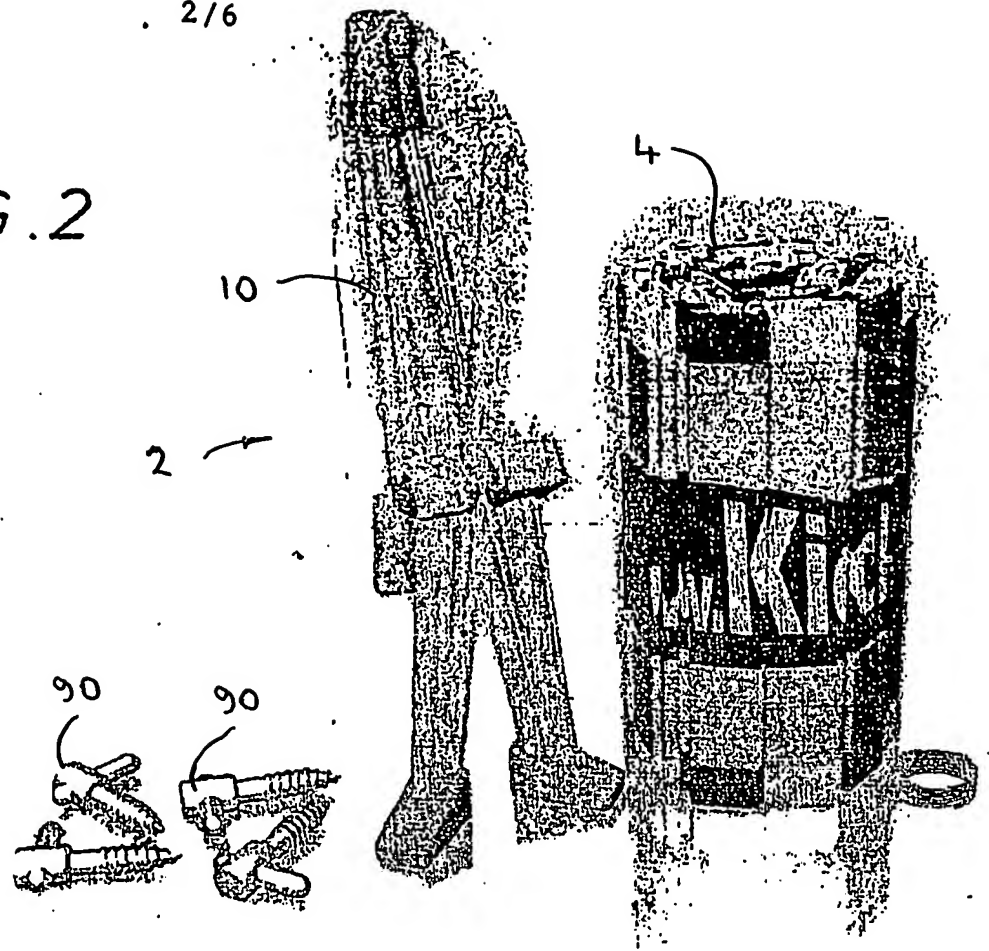


FIG. 3

FIG. 4

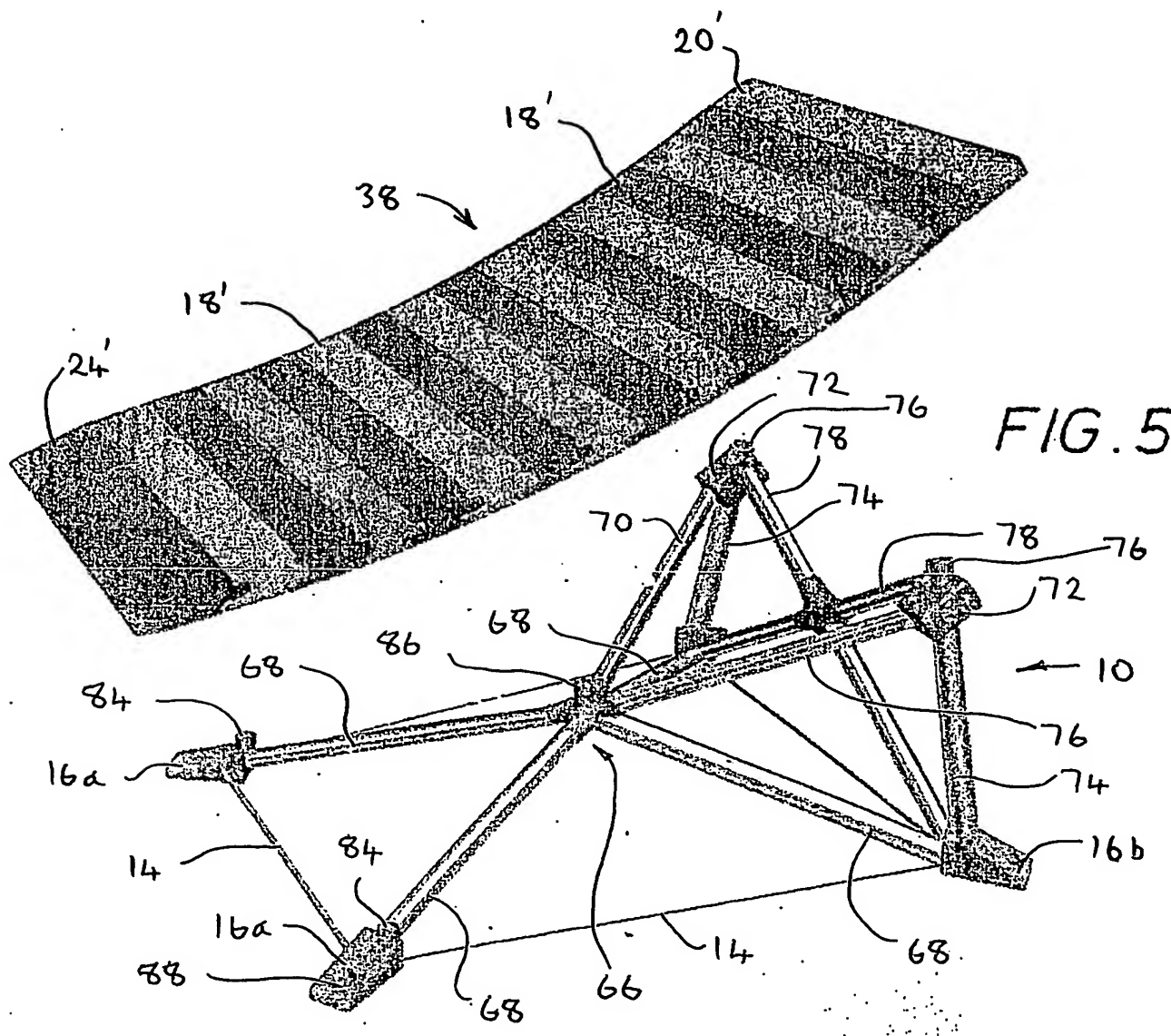
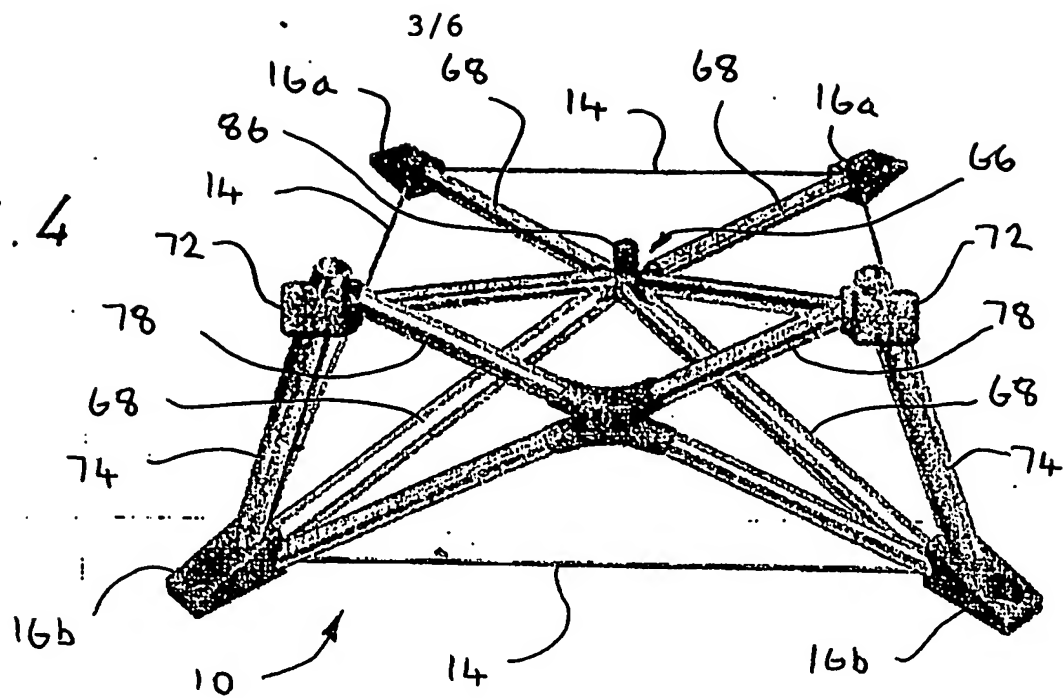


FIG. 5

FIG. 6

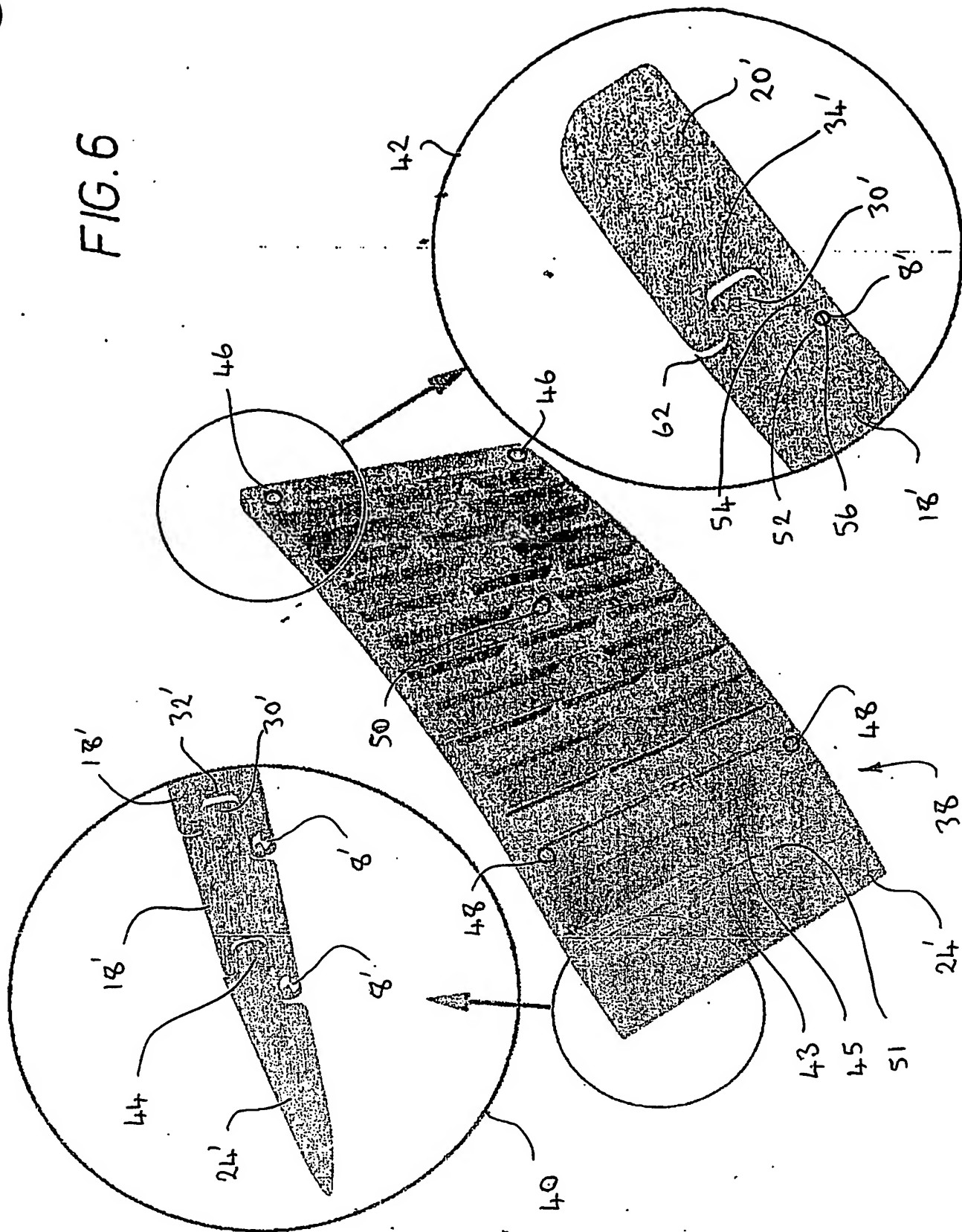
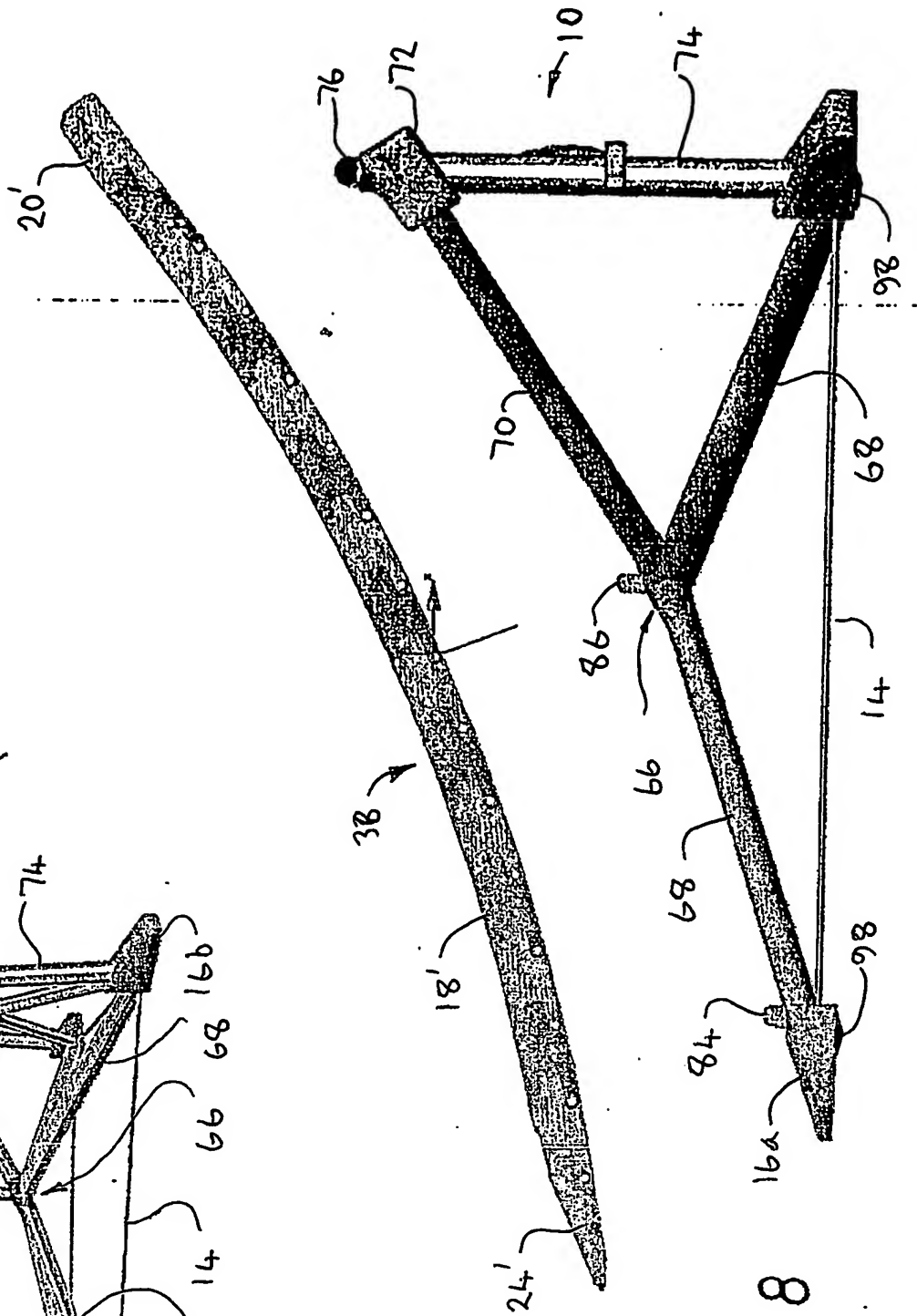
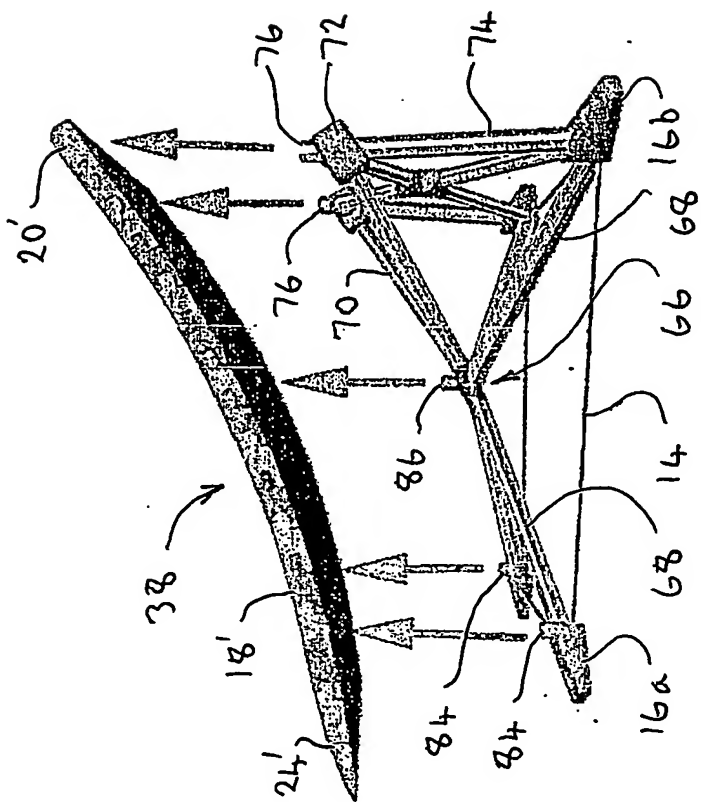


FIG. 7



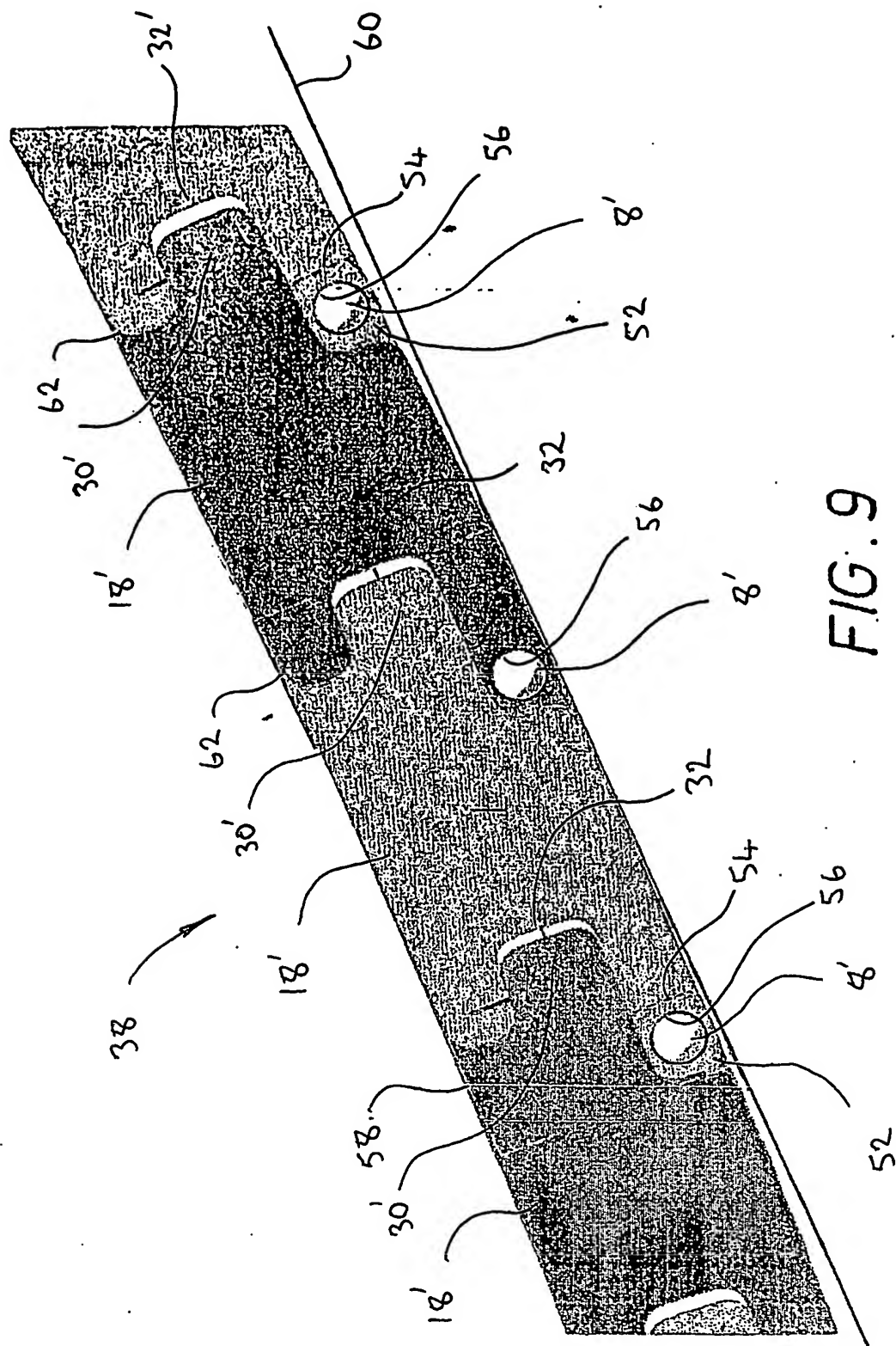


FIG. 9

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